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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,555	02/13/2001	Jacques Benveniste	9320.113USWO	8541
23552	7590	09/22/2004	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			CHUNDURU, SURYAPRABHA	
			ART UNIT	PAPER NUMBER

1637

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/673,555

Applicant(s)

BENVENISTE ET AL.

Examiner

Suryaprabha Chunduru

Art Unit

1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 and 33-76 is/are pending in the application.
- 4a) Of the above claim(s) 24-27, 36-41, 65-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23, 28-31, 33-35, 42-64 and 69-76 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. Acknowledgement is made for the request to establish continued prosecution application (RCE) filed on August 30, 2004. The request for RCE is accepted and is established with the status of the application as follows:
 - a. the filling date of this RCE is established as February 13, 2001;
 - b. claims 1, 42, 43, 61, 62, and 64 are amended. New claims 73-76 are added.
2. Applicants' response to the earlier office action filed on August 30, 2004 is considered and has been entered.
3. Claims 1-23, 28-31, 33-35, 42-64, and 69-76 are considered for examination. Non-elected claims 24-27, 36-41, 65-68 are withdrawn from consideration.

New Grounds of Rejection

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

Art Unit: 1637

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-13, 15-18, 20-21, 23, 28-31, 42-59, 61-62, 64, 69-76 are rejected under 35 U.S.C. 102(e) as being anticipated by Duong et al. (USPN. 6,740,518).

Duong et al. teach a method of claims 1-2, 7-8, 13, 20-21, 23, 42-43, 62, 64, 72-76, for detecting amplification signals of a reaction between a ligand (target sequence) and a receptor (probe) of a ligand-receptor pair in a biological sample or analytical sample, comprising (a) producing a signal from at least one of said ligand or said receptor of the ligand-receptor pair by placing said sample (biological sample)

comprising said biological sample and the ligand in a zone (electrode) subjected to an electromagnetic excitation field at a frequency between 0.01 Hz to about 100 MHz wherein the electromagnetic signals are applied subsequent to said ligand and receptor being brought into contact (see col. 79, line 25-41);

Converting the signals resulting from said interactions of excitation field and said ligand or receptor of said ligand-receptor pair by means of measuring signals acquired from excitation field, whereby said process amplifies the reaction at least by increasing the binding affinity of ligand and receptor (see col. 80, line 30-41).

With regard to claim 3-5, 9-12, 44-46, 50-54, Duong et al. teach said signal is applied to a solution comprising said ligand and receptor (see col. 25, line 30-41) and said ligand is diluted in a solvent exposed to the electrode (see col. 25, line 41-62);

With regard to claim 6, 47, 55, Duong et al. teach said the solvent comprises aqueous solution (water) (see col. 26, line 1-19);

With regard to claims 16-17, 56-58, Duong et al. teach said signals are recorded using data processing and comprises detection of said ligand-receptor complexes (see col. 3, line 34-54, col. 80, line 30-41);

With regard to claim 18, 48-49, 59, Duong et al. teach said ligand is an antigen and said receptor is an antibody (see col. 5, line 48-65, col. 6, line 9-12);

With regard to claims 28-31, 61-62, 64, 69-71, Duong et al. teach said process is used in biologic diagnostics in human, environmental, and pharmacological studies (See col. 5, line 20-65);

With regard to claim 42, Duong et al. teach said process amplifies the reaction between ligand-receptor binding (see col. 55, line 35-50). Thus the disclosure of Duong et al. meets the limitations in the instant claims.

Response to Arguments

5. Applicants' response to the office action is fully considered and found persuasive in part.
6. With reference to the rejection under 35 USC 112 second paragraph, Applicants amendment and arguments are fully considered and the rejection is withdrawn herein in view of the amendment.
7. The following rejection was maintained in the previous office action under 35 USC 102(b):

Claims 1-23, 28-35 and 42-64, 69-72 are rejected under 35 U.S.C. 102(b) as being anticipated by Benveniste et al. (J Allergy Clin Immunol., vol. 99 (1), part 2, pp S175, 1997).

Benveniste et al. teach a method of digitally amplifying electromagnetic signal of biological molecules wherein Benveniste et al. disclose that the method comprises bringing into contact ligand (agonist) with receptor (target cell), applying electromagnetic signals in a solvent (water)

Art Unit: 1637

to detect molecular activity (see page S175, column 1, abstract 705). Further, Benveniste et al. disclose recording digital 22kHz (kilo hertz) by a transducer and computer with soundcard (see page S175, column 1, abstract 705); the method can be applied to chemistry, biology and medicine. Thus the disclosure of Benveniste et al. meets the limitations in the instant claims.

Response to arguments:

With reference to the above rejection under 35 USC 102(b) as anticipated by Benveniste et al. (J.Allergy Clin Immunol., Vol. 99(1), part 2, ppS175, 1997), Applicants arguments and amendment are fully considered and found not persuasive. Applicants' amendment did not change the scope of the amended claim 1 since claims reads on signal generated from either ligand alone or receptor of a ligand –receptor pair. Applicants' point out that the prior art teaches signals from hearts from ovalbumin –immunized guinea pigs perfused with the solutions containing naïve water alone, or ovalbumin or naïve water and ovalbimin, which indicates that ovalbumin binds with the receptor in the perfused hearts (immunization results in antigen-antibody complex formation) and acquiring electromagnetic radiation signals from ligand of ligand-receptor pair under frequency of 22 kHz (see page S175, column 1, abstract 705) from perfused hearts anticipates the claim 1. Applicants also argue that guinea-pig hearts and ova are never submitted to any produced signal, prior to, simultaneously to or subsequent to the perfusion, but argue that ovalbumin molecules are submitted to an excitation signal, which indicates that signal applied to ligand of the ligand-receptor pair, which meets the claim limitation reciting “acquiring a signal from at least one said ligand.” The prior art teaches “signals from ovalbumin are digitally amplified” and “EM radiation under 22 kHz can be digitized” which indicates that the biological element (ovalbumin) had been exposed to EM prior

Art Unit: 1637

to recording the amplified signals is inherent in the teachings of prior art. Applicants also argue that the instant amended claim 1 is not anticipated by the prior art. This argument is fully considered, and found not persuasive. The amended claim 1, limitations are inherent in the teachings of Benveniste et al. as stated above. Thus the rejection is maintained herein.


Conclusion

No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suryaprabha Chunduru whose telephone number is 571-272-0783. The examiner can normally be reached on 8.30A.M. - 4.30P.M, Mon - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and - for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.


Suryaprabha Chunduru
September 16, 2004


GARY BENZION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600